

We feel that a butterfly, free and alive, will not fulfil the conditions to be appealing as a prey to a predator, as was so keenly expressed by Dr. Valverde: "The appeal a prey has to a potential predator is in direct relation to the amount of energy the predator would derive from eating it, and in inverse relation to the amount of energy the predator has to spend to capture it."

Even if there must be in nature some instances when a hungry bird succeeds in catching a butterfly in flight, it is far from being a common happening as it is assumed by many indoor naturalists.

The relatively slow flight of butterflies, as compared to the rapid flight of other insects (e.g. Coleoptera, Homoptera, Diptera, Hymenoptera, etc.) is very deceptive due to the slow flapping of the rather large wings, which permit the butterfly sudden changes of level and direction, thus easily fooling the rushing attack of an also flying and heavier bird. To pursue and capture under such conditions would entail a large consumption of energy on the part of the predator, with a meagre amount of edible matter (head, body and legs) if finally successful. On the contrary Coleoptera, Cicadidae, Diptera, Heterocera, Orthoptera, etc., even if they have a very fast flight, it is more straight, and their relatively stout bodies offer a worthy reward for the efforts, even if repeated, of the hunter.

Acknowledgements

We express our gratitude to Dr. Arthur H. B. Rydon for sharing his personal observations with us, and for reading and kindly suggesting improvements to the present paper. We are also thankful to Dr. Walter A. Thurber for communicating to us some of his own observations.

NYMPHALIS ANTIOPA (L.) IN CAITHNESS. — At 3 p.m. on 18th August my wife and I, whilst collecting larvae of *Lasio-campa quercus* ssp. *callunae* Palmer in a somewhat remote part of the heather/peat country of Caithness, were having lunch in a quarry at about 1,000 ft. A large butterfly suddenly entered and alighted on a rock about 10 yards from us. It was *Nymphalis antiopa* (L.) and at the temperature which was about 70°F., it rapidly took flight in a westerly direction.

The only other possible Scandinavian immigrants were *Eurois occulta* (L.) which we took in small numbers in Caithness at M.V., all f. *typica* and no melanics, as also later at Kinveachy Forest, near Aviemore, between 22nd August and 1st September. We also saw a small number of *Vanessa atalanta* at both places. Perhaps the most surprising observation is that there were so few of the normal migrant species which usually find their way into Scotland. — H. B. D. KETTLEWELL, Department of Zoology, South Parks Road, Oxford, OX1 3PS.